

CENTER HOUSING DESIGN FOR ELECTRIC ASSISTED TURBOCHARGER

ABSTRACT

An electric assisted turbocharger has an electric motor with a stator and a rotor that is coupled to a turbocharger shaft carried by a bearing assembly. The stator has a left-hand winding and a right hand-winding each projecting axially outwardly therefrom. The winds each extend a different distance radially along the motor (and are thus asymmetrical with respect to one another), thereby forming a radial gap along an axial end of the stator. The so-formed stator is disposed within a motor housing and together, the stator and motor housing, facilitate placement center housing axial end therein to minimize turbocharger axial length. The rotor is configured to prevent migration of oil into the motor housing, to improve dynamic balance, and comprises an integral thrust washer for placement against the bearing assembly.